

REMARKS

By this Amendment, claim 1 has been amended to further recite the claimed subject matter, claim 33 has been added, and claims 3 and 19-32 have been cancelled without prejudice or disclaimer. Applicant does not, by this amendment, intend to abandon subject matter of the claims as originally filed or later presented. Claim 33 is merely a dependent claim from independent claim 1 and is fully supported by the specification. No new matter has been added. Claims 1-2, 4-18 and 33 are pending in this patent application. Reconsideration of the rejections in view of the remarks below is requested.

The Office Action summary does not reference whether the drawings were accepted. Applicant kindly requests an indication in the next action whether the drawings are acceptable.

The Office Action rejected claims 1-3 and 5-7 under 35 U.S.C. §102(b) as being anticipated by U.S. patent no. 5,144,363 to Wittekoek et al. ("Wittekoek et al."). Applicant respectfully traverses the rejection, without prejudice.

Applicant respectfully submits that the cited portions of Wittekoek et al. fail to disclose, teach or suggest an alignment system for a lithographic apparatus comprising, *inter alia*, a radiation sensor configured to be arranged in a path of at least a portion of a beam of ultraviolet alignment radiation having a wavelength smaller than 50 nm as recited in independent claim 1.

Wittekoek et al. merely disclose an alignment system configured to operate with traditional ultraviolet and deep ultraviolet radiation (e.g., 193 nm, 248 nm and 256 nm), not radiation with a wavelength less than 50 nm. As the specification indicates, an embodiment of the invention has solved, in a practical fashion, the unique problems associated with detecting radiation at wavelengths less than 50 nm. The Office Action argues that col. 7, lines 48-53 of Wittekoek et al. discloses a projection beam having a wavelength of 130 nm and that a projection beam is in the range of 2.5 to 3.2 times the wavelength of the alignment beam (Wittekoek et al., col. 4, lines 47-49), hence an alignment beam of less than 50 nm. Applicant respectfully disagrees. Wittekoek et al. does not disclose, teach or suggest a projection beam of 130 nm. Rather, col. 7, lines 48-53 of Wittekoek et al. indicates that a 1 pm variation of the wavelength of the radiation may result in a displacement of 130 nm of the focus of the projection beam. This does not mean that the wavelength of the radiation itself is 130 nm.

Therefore, for at least the above reasons, the cited portions of Wittekoek et al. fail to disclose, teach or suggest all the features recited by independent claim 1. Claims 2, 4-18 and 33 depend from independent claim 1 and are, therefore, patentable for at least the same reasons provided above related to claim 1, and for the additional features recited therein. As a result, Applicant respectfully submits that the rejection under 35 U.S.C. §102(b) of claims 1-3 and 5-7 in view of Wittekoek et al. should be withdrawn and the claims allowed.

The Office Action rejected claims 4, 8-13 and 15-18 under 35 U.S.C. §103(a) as being obvious in view of Wittekoek et al. further in view of U.S. patent no. 3,745,358 to Firtz et al. ("Firtz et al.") and U.S. patent no. 5,349,194 to Wuest et al. ("Wuest et al."). Applicant respectfully traverses the rejection, without prejudice.

As noted above, Wittekoek et al. fail to disclose, teach or suggest independent claim 1. Claims 4, 8-13 and 15-18 depend from claim 1 and are, therefore, patentable for at least the same reasons provided above regarding Wittekoek et al. as related to independent claim 1, and for the additional features recited in those dependent claims.

Further, Firtz et al. fail to overcome the shortcomings of Wittekoek et al. and/or to independently disclose, teach or suggest the subject matter of claims 4, 8-13 and 15-18. Firtz et al. merely disclose an alignment system for an electron beam projection system. (Firtz et al., Abstract). Thus, Firtz et al. fails to provide any disclosure, teaching or suggestion regarding an alignment system for a lithographic apparatus comprising, *inter alia*, a radiation sensor configured to be arranged in a path of at least a portion of a beam of ultraviolet alignment radiation having a wavelength smaller than 50 nm. Firtz et al. simply fails to provide any disclosure, teaching or suggestion regarding an alignment sensor configured to be arranged in a path of at least a portion of a beam of ultraviolet alignment radiation having a wavelength smaller than 50 nm. Firtz et al. is about electron beam systems.

Wuest et al. also fail to overcome the shortcomings of Wittekoek et al. and/or to independently disclose, teach or suggest the subject matter of claims 4, 8-13 and 15-18. Wuest et al. merely disclose a microgap ultra-violet detector of photons with wavelengths less than 400 nm (4000 Angstroms) which comprises an anode and a cathode separated by a gas-filled gap and having an electric field placed across the gap, wherein either the anode or the cathode is semi-transparent to UV light. (Wuest et al., Abstract). Thus, Wuest et al. fails to provide any disclosure, teaching or suggestion regarding an alignment system for a lithographic apparatus comprising, *inter alia*, a radiation sensor configured to be arranged in a path of at least a portion of a beam of ultraviolet alignment radiation having a wavelength

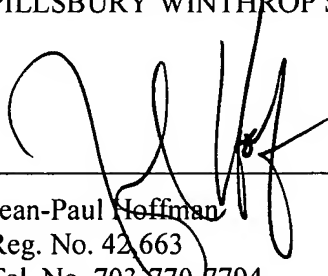
smaller than 50 nm. Wuest et al. simply fails to provide any disclosure, teaching or suggestion regarding an alignment sensor, let alone an alignment sensor for a lithographic apparatus configured to be arranged in a path of at least a portion of a beam of ultraviolet alignment radiation having a wavelength smaller than 50 nm.

Therefore, for at least the above reasons, the cited portions of Wittekoek et al., Firtz et al., Wuest et al., and any combination thereof fail to disclose, teach or suggest all the features recited by claims 4, 8-13 and 15-18. New claim 33 is patentable for at least the same reasons provided above regarding Wittekoek et al., Firtz et al., Wuest et al., and any combination thereof, and for the additional features recited in that dependent claim. As a result, Applicant respectfully submits that the rejection under 35 U.S.C. §103(a) of claims 4, 8-13 and 15-18 should be withdrawn and the claims allowed.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in condition for allowance. If questions relating to patentability remain, the Examiner is invited to contact the undersigned to discuss them.

Should any fees be due, please charge them to our deposit account no. 03-3975, under our order no. 081468/0309128. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced deposit account.

Respectfully submitted,
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